J1
5V in
+5V
1
2
GND

J18
Disp I2C
1 GND
2 +5V
3 SDA
4 SCL
Display I2C

J2
YF-S201
1 +5V
2 FM_DATA
3 GND
Water Flow Sensor

J9
Turb S
1 GND
2 +5V
3 A0
Turbulence Sensor

J10
pH S
1 GND
2 +3V3
3 A1
pH Sensor

J13
BTN
1 +3V3
2 BTN
3 GND
SW Button

J17
ENC
1 ENC_CLK
2 ENC_DT
3 ENC_SW
4 +3V3
5 GND
Encoder

Digital Level Converter
SCL_3V3 1
SDA_3V3 2
+3V3 3 **J3** **J4** 3 +5V
GND 4 LLC_L LLC_R 4 GND
FM_DATA_3V3 5 5 FM_DATA
6 6
1 SCL
2 SDA

+5V to +3V3 regulator
+5V 1 **J5** **J6** 1 +3V3
GND 2 AMS_L AMS_R 2 GND

Analog-Digital Converter
J7
ADS1115
1 +5V
2 GND
3 SCL
4 SDA
5
6
7 A0
8 A1
9 A2
10 A3

J16
ADC2
1 GND
2 +5V
3 A2
Extra ADC A2

J15
ADC3
1 GND
2 +5V
3 A3
Extra ADC A3

Mounting Holes
H3 —
H2 —
H1 —

U1
ESP32-DEVKITC
1 3V3
2 EN/RESET
FM_DATA_3V3 3 GPIO36/AD0/SVP
BTN 4 GPIO39/AD3/SVN
ENC_CLK 5 GPIO34/AD6
ENC_DT 6 GPIO35/AD7
ENC_SW 7 GPIO32/AD4/TOUCH9
PWM_1 8 GPIO33/AD5/TOUCH8
PWM_2 9 GPIO25/AD18/DA1
PWM_3 10 GPIO26/AD19/DA2
SD_CS 11 GPIO27/AD17/TOUCH7
SD_SCK 12 GPIO14/AD16/TOUCH6/HSPI_SCK
SD_MISO 13 GPIO12/AD15/TOUCH5/HSPI_MISO
GND 14 GND1
SD_MOSI 15 GPIO13/AD14//TOUCH4/HSPI_MOSI
16 GPIO9/FLASH_D2
17 GPIO10/FLASH_D3
18 GPIO11/FLASH_CMD
+5V 19 5V

38 GND3 GND
37 GPIO23/SPI_MOSI RTD_MOSI
36 GPIO22/WIRE_SCL SCL_3V3
35 GPIO1/SERIAL_TX
34 GPIO3/SERIAL_RX
33 GPIO21/WIRE_SDA SDA_3V3
32 GND2 GND
31 GPIO19/SPI_MISO RTD_MISO
30 GPIO18/SPI_CLK RTD_SCK
29 GPIO5/SPI_SS RTD_CS
28 GPIO17 SQW
27 GPIO16 PWM_4
26 GPIO4/AD10/TOUCH0 PWM_5
25 GPIO0/AD11/TOUCH1/BOOT
24 GPIO2/AD12/TOUCH2
23 GPIO15/AD13/TOUCH3/HSPI_SS
22 GPIO8/FLASH_D1
21 GPIO7/FLASH_D0
20 GPIO6/FLASH_SCK
USB

ESP32 DevkitC

RTD to digital converter
J12
MAX31865
1 +3V3
2 GND
3
4 RTD_SCK
5 RTD_MISO
6 RTD_MOSI
7 RTD_CS
8

Real Time Clock
J8
DS3231
1
2 SQW
3 SCL_3V3
4 SDA_3V3
5 +3V3
6 GND

SD Memory Module
J11
SD mem
1 GND
2 +5V
3 SD_MISO
4 SD_MOSI
5 SD_SCK
6 SD_CS

PCF8574
J23
PCF_PD_IO_PIN
1
2 PCF_PD_1
3 PCF_PD_2
4 PCF_PD_3
5 PCF_PD_4
6 PCF_PD_5
7 PCF_PD_6
8 PCF_PD_7
9 PCF_PD_8

J0
PCF_PD_IO
9 PCF_PD_1
8 PCF_PD_2
7 PCF_PD_3
6 PCF_PD_4
5 PCF_PD_5
4 PCF_PD_6
3 PCF_PD_7
2 PCF_PD_8
1 GND

J22
PCF_PU_IO_PIN
1
2 PCF_PU_1
3 PCF_PU_2
4 PCF_PU_3
5 PCF_PU_4
6 PCF_PU_5
7 PCF_PU_6
8 PCF_PU_7
9 PCF_PU_8

J21
PCF_PU_IO
9 PCF_PU_1
8 PCF_PU_2
7 PCF_PU_3
6 PCF_PU_4
5 PCF_PU_5
4 PCF_PU_6
3 PCF_PU_7
2 PCF_PU_8
1 +3V3

J19
PCF8574_PU
1 +3V3
2 GND
3 SDA_3V3
4 SCL_3V3

J20
PCF8574_PD
1 +3V3
2 GND
3 SDA_3V3
4 SCL_3V3

PWM control signals
J14
PWM_Out
1 PWM_12V_1
2 PWM_12V_2
3 PWM_12V_3
4 PWM_12V_4
5 PWM_12V_5

PWM_12V_1
IRLZ44N Q1
R1 330R PWM_1
R2 10KR GND
GND

PWM_12V_3
IRLZ44N Q3
R7 330R PWM_3
R5 10KR GND
GND

PWM_12V_5
IRLZ44N Q5
R11 330R PWM_5
R10 10KR GND
GND GND

PWM_12V_2
IRLZ44N Q2
R4 330R PWM_2
R3 10KR GND
GND GND

PWM_12V_4
IRLZ44N Q4
R8 330R PWM_4
R6 10KR GND
GND GND